

## ABSTRACT OF THE DISCLOSURE

The present invention provides scheduling algorithms that guarantee minimum data transport service for even ATs with poor channel conditions. Data-requesting ATs are divided into a number ( $N_{g1}$ ) of AT groups according to their channel conditions. Also, a recurring sequence of time slots is defined on the TDMA channel and partitioned into a number ( $N_{g2}$ ) of slot groups, where  $N_{g2}$  is made larger than  $N_{g1}$ . Generally, slot assignment according to the present invention is a two-step process. First, in the sequence, the slot groups are allocated to the AT groups so that AT groups with better channel conditions will receive more slot groups while each AT group will receive at least one slot group. Second, in each AT group, the time slots allocated to an AT group are assigned to the individual ATs in the group. By assigning more slot groups to AT groups with better channel conditions, the algorithm will optimize the overall data throughput. By assigning at least one slot group to each AT groups, the algorithm will guarantee minimum service to ATs with poor channel conditions.